WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 29A070

STATION NAME: Rock Creek at Stevenson

WATER YEAR: 2013

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Introduction

Watershed Description

Rock Creek drains 42 square miles. There are six streams that drain into Rock Creek above the station located above Ryan Allen Road. The maximum basin elevation is 4,220 ft, and the minimum basin elevation is 310 ft, with the mean basin elevation of 1,890 ft. Seventy-three percent of the basin is covered in forest. Mean annual precipitation is 100 inches. Fifty-eight percent of the slope is greater than 30%. Stream channel is made up of bedrock and large boulders.

Gage Location

Operation of this station started in June 2008. Primary gage index is staff gage. A Laser Level is the secondary gage. Ecology's telemetry stream gage on Rock Creek is located at river mile 1.0, on Ryan Allen Road upriver from the town of Stevenson.The gage is located on the upstream side of bridge.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	42
Latitude (degrees, minutes, seconds)	45 41 55
Longitude (degrees, minutes, seconds)	121 54 18

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	272
Median Annual Discharge (cfs)	204
Maximum Daily Mean Discharge (cfs)	1,520
Minimum Daily Mean Discharge (cfs)	5.8
Maximum Instantaneous Discharge (cfs)	1,820
Minimum Instantaneous Discharge (cfs)	5.4
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	692
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	8.4
Number of Days Discharge is Greater Than Range of Ratings	8
Number of Days Discharge is Less Than Range of Ratings	23
Number of Un-Reported Days	8
Number of Days Qualified as Estimates	195
Number of Modeled Days	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Table 2 Discussion (Discharge Statistics)

The highest reported daily flow occurred on November 19, 2012. The lowest daily flow occurred on October 02, 2012. Eight days were below rating, and seven days were above rating. Six days exceeded the rating table.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	8
Potential Weighted Rating Error (% of discharge)	15
Total Potential Error (% of discharge)	23

Table 3 Discussion (Error Analysis)

The potential error is caused by the medium to large boulders and the wide range of velocity.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	6.35
Maximum Recorded Stage (feet)	14.74
Range of Recorded Stage (feet)	8.39

Table 4 Discussion (Stage Record)

The highest reported daily flow occurred on November 19, 2012. The lowest daily flow occurred on October 2, 2012.

Table 5. Rating Table Summary

Rating Table No.	101		
Period of Ratings	07-31-12 to 10-01-13		
Range of Ratings (cfs)	3.42 to 1,850		
No. of Defining Measurements	35		
Rating Error (%)	15		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Table 5 Discussion (Rating Tables)

The rating error of 15% is due to the roughness of the channel which is made up of bedrock edges, large boulders, and cobbles.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Table 6 Discussion (Modeled Data)

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Table 7 Discussion (Surveys)

Activities Completed

Appendix

At the start of the WY 2014, only “stage” was recorded, due to budget cuts.